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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/600,203	08/09/2000	Satoshi Ogata	13409.1USWO	7904

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EXAMINER	
SAVAGE, MATTHEW O	

ART UNIT	PAPER NUMBER
1724	

DATE MAILED: 07/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/600,203	OGATA ET AL.	
	Examiner	Art Unit	
	Matthew O Savage	1724	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 April 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4 and 6-16* is/are pending in the application.

4a) Of the above claim(s) *13-16* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-3, and 6, and 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 4-45811 in view of Pike et al.

With respect to claim 1, JP '811 discloses a strip, and a non-woven fabric 3 wound around a perforated cylinder 4 in twill form (see FIGS. 1 and 2). As best understood, JP '811 fails to specify long thermoplastic fibers prepared using a spun bonding method with fiber intersections that are thermally adhered. Pike et al disclose spun bonded non woven fabric prepared using a spun bonding method (see example 1 in columns 10-11) with fiber intersections that are thermally adhered by a hot blast (see example 1) and suggests that such an arrangement has high filtration efficiency and physical strength (see the first full paragraph of col. 3). It would have been obvious to have modified the JP '811 filter so as to have included long thermoplastic fibers with fiber intersections that were adhered as suggested by Pike et al in order to provide strips of filter media having high filtration efficiency and high physical strength properties. Pike et al fails to specify using thermal compression bonding for bonding fiber intersections of the media. Pike et al disclose that thermal compression bonding is known in the art. Pike et al teach suggests that thermal compression bonding yields non-uniform porosity and lower filtration efficiency than that that produced by through air bonding (see from line 63 of col. 1 to line 22 of col. 2). It would have been obvious to

have modified the combination of '811 and Pike et al so as to have included thermal compression bonding in place of through air bonding in the case that a lower filtration efficiency could be tolerated and in the case that thermal compression bonding equipment was readily available.

Regarding claim 2, Pike et al disclose a thermoplastic adhesive composite fibers including a low melting point resin and a high melting point resin with a difference in melting point be 10 degrees C or more (see example 1).

Concerning claim 3, Pike et al disclose the low melting point resin as being linear low density polyethylene and the high melting point resin as being polypropylene (see example 1).

Concerning claim 6, JP '811 discloses the strip as being twisted (see the abstract).

Regarding claim 10, JP '811 and Pike et al fail to specify the recited void rate, however, such a modification would have been obvious in order to optimize the filter for a particular application.

Concerning claim 11, JP '811 and Pike et al fail to specify the slit width and product of the slit width and basis weight, however, such a modification would have been obvious in order to optimize the filter for a particular application.

As to claim 12, JP '811 and Pike et al fail to specify the recited ratio, however, such a modification in filter structure, i.e., selecting the fiber diameter and filter density to achieve such a ratio would have been obvious to one skilled in the art in order to optimize the filter for a particular application.

Claim 4 is rejected under 35 U.S. C. 103(a) as being unpatentable over over JP 4-45811 in view of Pike et al as applied to claim 1 above, and further in view of EP 831,161.

As to claim 4, Pike et al disclose that it is known in the art to bond an analogous fabric by thermal compression via a calendering process (see from line 63 of col. 1 to line 22 of col. 2) but fails to specify the non-woven fabric as being bonded by means of a heat embossing roll. EP '161 discloses the concept of bonding an analogous non-woven fabric with a heat embossing roll and suggests that such a media is free from delamination and has good pleatability and good dimensional stability. It would have been obvious to have modified the combination of '811 and Pike et al so as to have included fabric bonded by means of a heat embossing roll as suggested by '161 in order to provide a filter media that was free from delamination and that had good pleatability and dimensional stability.

Claims 7-9 are rejected under 35 U.S. C. 103(a) as being unpatentable over over JP 4-45811 in view of Pike et al as applied to claim 1 above, and further in view of JP 1-115423.

With respect to claim 7, JP '811 and Pike et al fail to specify pleated matter having 4-50 pleats. J P '423 discloses the concept of pleating an analogous non woven strip 3 so as to have 4-50 pleats (see FIG.6) and suggests that such an arrangement increases the strength and dimensional stability of the filter media (see the abstract). It would have been obvious to have modified the combination suggested by JP '811 and Pike et al so as to have included pleated matter as suggested by JP '423 in order to increase the strength and dimensional stability of the filter.

Regarding claim 8, JP '423 discloses pleats that are non-parallel because the pleats extend along non-linear paths.

Concerning claim 9, JP '811 and Pike et al fail to specify the recited void rate, however, such a modification would have been obvious in order to optimize the filter for a particular application.

Applicant's arguments filed 7-12-04 have been fully considered but they are not persuasive.

Applicant's argument that Pike et al teach away from thermal compression bonding is noted in the case that optimum filtration efficiency was required, however, it is held that one skilled in the art would substitute thermal compression bonding for through air bonding in the case that a lower filtration efficiency could be tolerated and in the case that thermal compression bonding equipment was readily available.

Applicant's argument that the Yamaguchi declaration shows unexpected results with respect to JP '811 and Pike et al thereby rebutting a prima facie case of obviousness is not considered persuasive since the declaration fails to show any unexpected results in the case of a wound filter suggested by the prior art references.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew O Savage whose telephone number is (571) 272-1146. The examiner can normally be reached on Monday-Friday, 7:00am-3:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571) 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

M. Savage

Matthew O Savage
Primary Examiner
Art Unit 1724

mos
July 12, 2004